

**Commonwealth of Kentucky**  
**Division for Air Quality**  
***PERMIT STATEMENT OF BASIS***

*Draft* TITLE V NO. V-08-037

COMMONWEALTH ALUMINUM LEWISPORT, LLC

LEWISPORT, KY.

JANUARY 7, 2009

HOSSEIN RAKHSHAN, REVIEWER

PLANT I.D. # 21-091-00010

APPLICATION LOG # F139 (50143), AI#: 1622, APE#20080002

On August 14, 2008, Commonwealth Aluminum submitted a permit renewal application to its existing V-03-049 (R2) permit for a secondary aluminum plant in Lewisport, KY. The plant is classified as a Title V/Synthetic Minor source due to its emissions of regulated and hazardous air pollutants.

Commonwealth is seeking to streamline its air permit by making a series of administrative revisions such as rewording or reorganization of the permit conditions without changing requirements through the renewal process.

The major changes to the permit are as follow:

- ▲ Removing emission point 30 (HR-2) and correcting the process rates for 30 (HR-1) and 30A (SCH-18). HR-2 was the air exhaust from the second cyclone, which was put in to capture chips from a new edge surface scalper, which was never brought into full production, and has been permanently shut down. The cyclone is still standing but inoperable. All of the equipment at the Scalper has been removed and the actual cyclone will be removed in the future.
- ▲ Removing self-imposed particulate emissions limit for emission point 30 (HR-1) and 30 A (SCH-18) since the potential to emit is well below the self-imposed limit.
- ▲ Section C (Insignificant Activities) has been updated to reflect the existing insignificant activities of the facility. Trivial activities such as underground storage tanks have been removed from this section.
- ▲ Authorization for future addition of two above ground gasoline and two above ground diesel/kerosene storage tanks less 10000 gal without a permit revision as insignificant activities has been added to Section H of the permit.
- ▲ Emission points 66 (CC-1) Caustic Cleaning Line (for 656 Paint Line), 67 (CC-8) Acid Etch Infrared Curing Oven and 65 (CC-2-7) Burners # 1-6 Caustic Cleaning Line (for 656 Paint Line) meet the requirements of insignificant activities, therefore, they have been moved from Section B to Section C of the permit.
- ▲ 401 KAR 51:017 Prevention of significant deterioration does not apply to this source and has been removed from the South Cast House and Cold Rolling Emission Points.

**SOURCE DESCRIPTION:**

Commonwealth Aluminum, Lewisport, Inc. (CALI) owns and operates an aluminum rolling mill facility. CALI manufactures aluminum coil from purchased aluminum sows, as well as purchased and in-plant generated scrap (including customer returns, both painted and bare scrap). Clean incoming material is generally converted to molten aluminum in one of eight melt furnaces in the South Casthouse, degassed and fluxed to remove entrapped hydrogen and metallic impurities, and cast into ingots. Purchased dirty scrap is received at the scrap metal preparation area, shredded, dried, and delacquered, and transferred to one of the melt furnaces in the North Casthouse. Molten

aluminum from the North Casthouse melters is transferred to one of four holding furnaces, fluxed in separate degas/fluxing units, and then cast into ingots. Molten aluminum from the South Casthouse melters is transferred to one of the seven holding furnaces, fluxed in the furnace using Rotary Gaseous Flux Injectors, prior to being cast into ingots.

Impurities in the aluminum removed by fluxing are skimmed from the surface of the molten metal in the form of aluminum dross which is cooled in rotary coolers in both Casthouses and, if the rotary dross coolers are not operational, on an ingot lined dross cooling pad located in the South Casthouse. The cooled dross is then shipped off-site for recovery of any aluminum, which may be contained in the dross load. The recovered aluminum is returned to the plant in over-the-road crucible trucks, or in sow form.

Ingots to be rolled are first transferred to an ingot scalper machining area, where the rough, grainy surface of the ingot, created by the casting process, is removed from both longitudinal rolling surfaces.

The scalped ingots are then transported to one of 12 soaking pits or one of two pusher tunnel furnaces. The soaking pits and tunnel furnaces heat the scalped ingot to a predetermined temperature for a specified length of time in order to homogenize the molecular structure of the ingot. This homogenizing process produces an internal grain structure that facilitates the subsequent rolling operations.

Once the ingots are homogenized, they are transported to the reversing mill. The reversing mill reduces the thickness of the ingot through a series of "back and forth" passes through a set of work rolls until a continuous slab approximately one inch thick is formed. Once the continuous slab has been produced, it is sheared on both ends to make the ends square and transferred to the 3-stand rolling mill. The three stand mill processes the slab through three consecutive thickness reduction passes, in series, followed by coiling the end pass product into a course gauge coil.

The coarse gauge coil is then further reduced in thickness by one of three cold rolling mills to produce a coil, which meets the customer's specifications. A given coil may pass through just the two stand tandem cold mill, or one of the single stand mills, but is usually rolled several times on all three mills at the plant.

Between cold mill passes, the metal is sometimes heated and cooled in an annealing furnace to restore workability lost during cold rolling.

Once the specified gauge has been reached, the coil then proceeds to one of four processing operations in coil finishing:

1. Processed as unpainted coil
2. Processed as slit coil
3. Painted
4. Packed and shipped.

#### **COMMENTS:**

Emission factors are from AP-42, stack tests, and material balances.

#### **APPLICABLE REGULATIONS:**

401 KAR 61:020, Existing process operations commenced before July 2, 1975

401 KAR 59:010, New process operations commenced on or after July 2, 1975

401 KAR 63:010, Fugitive emissions

401 KAR 63:002, 40 CFR Part 63 national emission standards for hazardous air pollutants, incorporating 40 C.F.R. 63.1500 to 63.1519 (Subpart RRR), "National Emission Standards for Hazardous Air Pollutants for Secondary Aluminum Production", as published in the Code of Federal Regulations, 40 C.F.R. Part 63, July 1, 2002;

Regulation 401 KAR 59:015, New indirect fired heat exchangers, applicable to an emissions unit with a rated capacity less than 250 mmBTU/hr which commenced on or after April 9, 1972.

Regulation 401 KAR 60:005, incorporating by reference Regulation 40 CFR 60, Subpart Dc, Standards of performance for small industrial-commercial-institutional steam generating units, for units less than or equal to 100 MMBTU/hour but greater than or equal to 10 MMBTU/hour commenced after June 9, 1989.

401 KAR 50:055, General compliance requirements

401 KAR 60:005, 40 CFR Part 60 standards of performance for new stationary sources incorporating by reference 40 CFR 60, Subpart TT, Standards of performance for metal coil surface coating.

401 KAR 63:002. 40 C.F.R. Part 63 national emission standards for hazardous air pollutants incorporating by reference) 40 C.F.R. 63, Subpart SSSS, "National Emission Standards for Hazardous Air Pollutants: Surface Coating of Metal Coil" ---Compliance by June 2005.

### **CREDIBLE EVIDENCE:**

This permit contains provisions which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has only adopted the provisions of 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12 into its air quality regulations.